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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,359	01/23/2002	Jui Lung Tsai	MR1683-379	3387
4586	7590	03/16/2004	EXAMINER	
ROSENBERG, KLEIN & LEE 3458 ELLICOTT CENTER DRIVE-SUITE 101 ELLICOTT CITY, MD 21043			MUTSCHLER, BRIAN L	
			ART UNIT	PAPER NUMBER
			1753	

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/052,359

Applicant(s)

TSAI, JUI LUNG

Examiner

Brian L. Mutschler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:
  - a. The specification repeatedly uses the incorrect form of the word "electroforming." For example, on page 1 at lines 7-8, the phrase "only a thinner electroforming layer is electroforming" would preferably be changed to --only a thinner electroforming layer is electroformed--. (If desired, the phrase "electroforming layer" can be maintained since it is used consistently throughout the claim and is a descriptive term referring to the electroformed layer.) Similarly, on page 1 at lines 25-26, the phrase "it will be necessary to re-electroforming and process the substrate" would preferably be changed to --it will be necessary to re-electroform and process the substrate--. Other similar phrases occur throughout the specification.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "a proper current" in line 6. The term "proper" is indefinite because the meaning of the term is uncertain. It is suggested that the phrase be changed to --a current--. The same applies to dependent claims 2-10.

Claim 7 recites the limitation "the second electroforming layer, the first thickening material and the first electroforming layer together forming a metal layer" in lines 5-7. This limitation is indefinite because it is not clear how or what forms a metal layer. None of the layers or materials has been described in the claims as comprising metal. Therefore, it is not clear if the metal layer simply comprises some metal or if the electroforming layers or thickening layer comprise metal. Giving the claim the broadest interpretation, the metal layer has been treated as simply a layer containing at least some metal. The same applies to dependent claim 8.

Claim 8 recites the limitation "the second electroforming layer, the first thickening material and the first electroforming layer together form a metal layer" in lines 4-6. This limitation is indefinite because the relationship between the metal layer recited in claim 7 and the metal layer recited in claim 8 is unclear. Are the metal layers the same layer? Also, what is the relationship between the metal layer in claim 8 and the second thickening material?

Claim 10 recites the limitation "the second electroforming layer" in line 6. There is insufficient antecedent basis for this limitation in the claim. Either the phrase should be changed to --the second thickening material--, or the second electroforming layer should be properly introduced in the claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 4, and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ungar et al. (U.S. Pat. No. 3,532,587).

Regarding claim 1, Ungar et al. disclose a method of electroforming a laminated die (stamper) comprising the steps of electroforming a layer over a substrate by placing a positive matrix (substrate) in a plating bath and applying a current density (col. 6, line 51 to col. 7, line 15). Placing the substrate in a plating bath and applying a current density inherently a container to hold the plating solution and electrodes to provide a path for the current. The electroformed layer has a complementary face to the dented and projecting structures on the matrix (fig. 2). A first thickening layer (core plate) is connected to the face of the electroformed layer distal from the matrix (fig. 3). After connecting the core plate to the electroformed layer, the matrix is separated from the electroformed layer (col. 4, lines 29-32).

Regarding claim 4, a welding agent (solder or heat-activated adhesive) is coated over the electroformed layer and the core plate and then heated to combine the electroformed layer and the core plate together (col. 3, line 41 to col. 4, line 10).

Regarding claims 7 and 10, Ungar et al. disclose the formation of double-sided dies, wherein a second electroformed layer is formed on a face of the core plate distal

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from the first electroformed layer, followed by the plating of additional nickel and chromium, which are equivalent to the second thickening material (col. 5, line 69 to col. 6, line 4). The electroformed layers comprise copper and the core plate comprises steel (col. 5, lines 69-72).

Regarding claims 8 and 9, the matrix is separated from the first electroforming layer after the first and second electroforming layers are formed (col. 5, line 69 to col. 6, line 4).

Since Ungar et al. teach all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

6. Claims 1, 2, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitano (U.S. Pat. No. 5,106,483).

Regarding claims 1 and 10, Kitano discloses a method for forming a mold comprising electroforming a metal layer **7** onto a substrate (matrix) **3** by immersing the matrix in a plating solution, connecting an anode and cathode, and providing a current (col. 3, lines 14-35). A reinforcement member **11** comprising a resin layer (first thickening material) **12** and a glass fiber layer (second thickening layer) **13** is connected to a face of the electroformed layer **7** distal from the substrate **3** (fig. 6; col. 3, lines 5-13).

Regarding claim 2, the electroformed layer **7** is 1 to 1.5 mm thick (col. 3, lines 32-35).

Regarding claim 9, the matrix **3** is removed after the electroformed layer **7** is formed (col. 4, lines 4-9).

Since Kitano teaches all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ungar et al. (U.S. Pat. No. 3,532,587), as applied above to claims 1, 4, and 7-10, and further in view of Stevens (U.S. Pat. No. 4,409,070).

Ungar et al. teach a method having the limitations recited in claims 1, 4, and 7-10 of the instant invention, as explained above in section 5.

The method of Ungar et al. differs from the instant invention because Ungar et al. do not teach that the surface of the thickening material is roughened before adhering the material to the electroforming layer by an adhesive, as recited in claim 3.

Stevens discloses a method of forming an electroformed layer and teaches, "When bonding an article to another article, by means of an adhesive, the strength of the bond is increased if the surfaces to which the adhesive is applied are roughened to assist keying of the adhesive" (col. 1, lines 7-10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have roughened the surface of the thickening material of Ungar et al. as taught by Stevens because roughening the surface increases the strength of the bond.

9. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ungar et al. (U.S. Pat. No. 3,532,587), as applied above to claims 1, 4, and 7-10, and further in view of Marks et al. (U.S. Pat. No. 5,622,611).

Ungar et al. teach a method having the limitations recited in claims 1, 4, and 7-10 of the instant invention, as explained above in section 5.

The method of Ungar et al. differs from the instant invention because Ungar et al. do not teach that the thickening material is placed on the electroformed layer and a laser beam is evenly projected on the periphery to connect the layers, as recited in claim 5, and further that the diameter of the laser beam is within 0.2 to 0.6 mm, as recited in claim 6.

Marks et al. teach that layers can be joined by means of laser welding, soldering, diffusion bonding, or adhesive bonding (col. 9, lines 40-43; col. 10, lines 51-54).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the adhesive bonding or soldering step in Ungar et al. to use a laser welding step as taught by Marks et al. because Marks et al. teach that laser welding is an equivalent suitable means for joining articles together.

Regarding the diameter of the laser beam, the size and type of laser used is dependant



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upon the size, shape, and material used, and it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the appropriate size laser because, as a results effective variable, the type of article being formed dictates the type of laser used.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 193,922	Cassel
U.S. Pat. No. 3,428,533	Pichel
U.S. Pat. No. 4,696,722	Towlson
U.S. Pat. No. 4,861,437	Koop et al.
U.S. Pat. No. RE 34,862	Czor
U.S. Pat. No. 6,409,902	Yang et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Mutschler whose telephone number is (571) 272-1341. The examiner can normally be reached on Monday-Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Nam Nguyen', is written over the typed name and title.

NAM NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

blm  
February 23, 2004